

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 24

**UNITED STATES PATENT AND TRADEMARK OFFICE**

**MAILED**

**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

**FEB 28 2002**

**PAT. & T.M. OFFICE  
BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Ex parte WILLIAM ELKINS

Appeal No. 2001-1546  
Application No. 09/127,256

**ON BRIEF**

Before COHEN, ABRAMS and BAHR, Administrative Patent Judges.  
BAHR, Administrative Patent Judge.

**DECISION ON APPEAL**

This is a decision on appeal from the examiner's final rejection of claims 1, 3-6, 8-10, 12-20 and 22-24, which are all of the claims pending in this application.

**BACKGROUND**

The appellant's invention relates generally to heat exchangers and more particularly to a thin flexible heat exchange panel for transferring heat to or from a

complex shape such as a portion of a human body (specification, page 1). A copy of the claims under appeal is set forth in the appendix to the appellant's brief.

The evidence of obviousness relied upon by the examiner in rejecting the appealed claims is as follows:

Haugeneder	5,080,166	Jan. 14, 1992
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Appellant's admitted prior art (AAPA), as illustrated in Figures 2A and 2B.

Claims 1, 3-6, 8-10, 12-20 and 22-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the AAPA in view of Haugeneder.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the above-noted rejection, we make reference to the answer (Paper No. 18) for the examiner's complete reasoning in support of the rejection and to the brief and reply brief (Paper Nos. 17 and 19) for the appellant's arguments thereagainst.

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims,<sup>1</sup> to the applied prior art references, to the Kast declaration (Paper No. 14), and to the respective positions articulated by the appellant and the examiner. Having reviewed all of the evidence before us, we make the determinations which follow.

For purposes of this appeal, appellant's brief (page 4) states that claims 1, 4, 6, 10, 13, 15, 16, 18, 20 and 24 should be grouped together as Group I and claims 3, 5, 8, 9, 12, 14, 17, 19, 22 and 23 should be grouped together as Group II. As claims 4 and 24 depend from claims 3 and 23, respectively, and claim 20 depends from claim 4, each of claims 4, 20 and 24 thus incorporates at least one of the limitations of a border seal including curvilinear ripples and a fence including curvilinear ripples recited in claims 3 and 23 which are the subject of the separate argument with regard to the Group II claims. It is thus apparent to us that appellant's grouping of claims 4, 20 and

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<sup>1</sup> We note that the upper limit of the angle range recited in the last line of claim 1 was changed from "110°" (as originally filed) to "100°" in the amendment filed March 22, 1999 (Paper No. 7). This change appears to be the result of an inadvertent typographical error, in that it was not indicated in the amendment by underlining and brackets, as required by 37 CFR § 1.121(a)(2)(ii) as then in effect. In any event, as the upper limit of 100°, rather than 110°, does not appear to be supported in appellant's original disclosure, the examiner and appellant may wish to review the range recited in claim 1 in the event of further prosecution of this application.

24 in Group I rather than Group II was an inadvertent error. Accordingly, for purposes of this appeal, we have included claims 4, 20 and 24 with the claims of Group II.

In accordance with 37 CFR § 1.192(c)(7), we select claim 6 as the representative claim to decide the appeal of the rejection of Group I. The remaining claims of Group I shall stand or fall with claim 6.

The examiner and appellant appear to be in agreement that the AAPA illustrated in Figures 2A and 2B and discussed on pages 3 and 4 of appellant's specification, the jumping off point of the examiner's obviousness determination, discloses all of the limitations of independent claim 6, with the exception of "said first imaginary lines crossing said second imaginary lines at an angle falling in a range of between about 70° to 110°." Rather, the dot matrix 210 in the AAPA is organized into first imaginary parallel lines 212, second imaginary parallel lines 213, and third imaginary parallel lines 214 for connecting each of the dots to the nearest adjacent dots of the dot matrix 210, the lines 212-214 crossing each other at angles of approximately 60°.<sup>2</sup> The examiner has determined that it would have been obvious to modify the AAPA dot matrix pattern such that the first and second imaginary lines cross at 90 degrees "for the purpose of achieving a desired heat exchange by providing optimum flow resistance and flow as recognized by Haugeneder" (answer, page 4).

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<sup>2</sup> The examiner has not asserted that the "approximately 60°" (specification, page 3) angle of the AAPA is "about 70°" so as to fall within the range recited in claim 6.

Appellant argues that the examiner's determination of obviousness is in error because Haugeneder is nonanalogous art (brief, pages 4-6). For the reasons which follow, we do not agree.

Two criteria have evolved for determining whether prior art is analogous: (1) whether the art is from the same field of endeavor, regardless of the problem addressed, and (2) if the reference is not within the field of the inventor's endeavor, whether the reference still is reasonably pertinent to the particular problem with which the inventor is involved. In re Clay, 966 F.2d 656, 658-59, 23 USPQ2d 1058, 1060 (Fed. Cir. 1992). See also In re Deminski, 796 F.2d 436, 442, 230 USPQ 313, 315 (Fed. Cir. 1986); In re Wood, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979).

Appellant's specification (page 1) informs us that the present invention "relates generally to heat exchangers." As the Haugeneder patent is directed to a heat exchanger for transferring heat from a heating medium (or to a cooling medium when the device is used as a heat exchanger in a cooling system), it is our view that the Haugeneder patent is within the field of the inventor's endeavor. Moreover, Haugeneder is concerned with providing a baffle pattern for avoiding a direct passage to thereby ensure that the heating or cooling medium flows through the heating element not only along one passage but practically through the whole cavity of the heating element due to its being deflected, thus reaching even the most remote areas at the

sides of the heating element (column 3, lines 6-10; column 1, line 57, to column 2, line 2; column 2, lines 48-54; column 3, line 68). Likewise, as discussed on page 8 of the specification, appellant is concerned with avoiding clear channels between the dots of the dot matrix 310 to promote mixing of the fluid, which is important for avoiding warm spots and maintaining a uniform temperature. It is thus apparent that the Haugeneder patent is reasonably pertinent to the particular problem addressed by appellant. We therefore conclude that Haugeneder is analogous art with respect to appellant's invention under either of the above-mentioned criteria.

As explained in column 2, line 32 *et seq.*, Haugeneder utilizes a pattern of spacing elements arranged in vertical and horizontal rows designed to prevent a direct passage or free flow of the fluid from the fluid inlet to the fluid outlet to achieve as even a flow of the medium through the heating element as possible. Assuming, as we must, that the artisan had knowledge of the spacing pattern of Haugeneder and its benefits, we conclude that the artisan would have derived from such knowledge that it is equally applicable to the AAPA heat exchange panel to achieve those same benefits. To conclude otherwise would be to improperly assume that the artisan possesses less than ordinary skill. In re Sovish, 769 F.2d 738, 743, 226 USPQ 771, 774 (Fed. Cir. 1985). Accordingly, we share the examiner's view that Haugeneder would have suggested to one skilled in the art at the time of appellant's invention modifying the dot matrix pattern

of the AAPA heat exchange panel such that the first and second imaginary lines cross at 90 degrees to avoid a free passage through the heat exchange panels between the fences in order to produce a more even distribution of the heating medium throughout the panel.

We fully appreciate that the AAPA heat exchange panel comprises flexible layers so as to be conformable to a complex shape and that the Haugeneder heating element is not disclosed as being flexible or conformable to a complex shape. In our view, however, the differences between the AAPA heat exchange panel and the heating element of Haugeneder in this regard are not of such a nature that one skilled in the art would have ignored the teachings of Haugeneder or overlooked the applicability of the benefits thereof to the AAPA heat exchange panel.

The Kast declaration (page 2) points out that the Haugeneder patent discloses a rigid, not flexible, panel and that Haugeneder is not concerned "about the problem of his spacing elements interfering with the size of the area of thermal contact, much less such elements exhibiting the ability of the panel to conform to complex and dynamically changing three dimensional forms." As long as some motivation or suggestion to combine the references is provided by the prior art taken as a whole, however, the law does not require that the references be combined for the reasons contemplated by the inventor. See In re Beattie, 974 F.2d 1309, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir.

1992); In re Dillon, 919 F.2d 688, 693, 16 USPQ2d 1897, 1901 (Fed. Cir. 1990), (en banc), cert. denied, 500 U.S. 904 (1991) and In re Kronig, 539 F.2d 1300, 1304, 190 USPQ 425, 427-428 (CCPA 1976). As discussed above, Haugeneder provides motivation to modify the AAPA panel as proposed by the examiner to ensure an even distribution of the flow of the medium therethrough.

After reviewing all of the evidence before us, including the totality of the appellant's evidence, it is our conclusion that, on balance, the evidence of nonobviousness fails to outweigh the evidence of obviousness discussed above and, accordingly, the subject matter of claim 6 would have been obvious to one of ordinary skill in the art within the meaning of 35 U.S.C. § 103 at the time the appellant's invention was made. See Richardson-Vicks Inc. v. Upjohn Co., 122 F.3d 1476, 1483, 44 USPQ2d 1181, 1187 (Fed. Cir. 1997). Therefore, we shall sustain the examiner's rejection of claim 6, as well as claims 1, 10, 13, 15, 16 and 18 which are grouped therewith.

Each of the claims of Group II (claims 3-5, 8, 9, 12, 14, 17, 19, 20 and 22-24) recites at least one of the border seal and the fence including curvilinear ripples. The term "curvilinear" is ordinarily<sup>3</sup> understood to mean "consisting of or enclosed by a

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<sup>3</sup> In proceedings before it, the PTO applies to the verbiage of claims the broadest reasonable meaning of the words in their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by  
(continued...)



curved line or lines” (Webster's New World Dictionary, Third College Edition (Simon & Schuster, Inc. 1988)). The fences and border seals of the AAPA panel assume a step or partial sawtooth ripple pattern consisting of straight-line segments and, thus, do not include “curvilinear” ripples as called for in the claims of Group II. We perceive no teaching or suggestion in either the AAPA or Haugeneder to modify the ripple pattern of the fences or border seals of the AAPA panel to provide a “curvilinear” ripple pattern and we find the examiner’s discussion of these features in the second full paragraph on page 6 of the answer perplexing and unavailing as to a motivation to make such a modification. It is not apparent to us how the orientation of the imaginary lines taught in Haugeneder would have suggested any particular ripple shape in the fences or border seals of the AAPA panel.

In light of the above, we conclude that the examiner has failed to set forth a *prima facie* case of obviousness of the subject matter of the claims of Group II. Accordingly, we shall not sustain the examiner’s rejection of claims 3-5, 8, 9, 12, 14, 17, 19, 20 and 22-24.

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<sup>3</sup> (...continued)  
the written description contained in the applicant's specification. In re Morris, 127 F.3d 1048, 1054, 44 USPQ2d 1023, 1027 (Fed. Cir. 1997).

CONCLUSION

To summarize, the decision of the examiner to reject claims 1, 3-6, 8-10, 12-20 and 22-24 under 35 U.S.C. § 103 is affirmed as to claims 1, 6, 10, 13, 15, 16 and 18 and reversed as to claims 3-5, 8, 9, 12, 14, 17, 19, 20 and 22-24.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART



IRWIN CHARLES COHEN  
Administrative Patent Judge



NEAL E. ABRAMS  
Administrative Patent Judge



JENNIFER D. BAHR  
Administrative Patent Judge

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